

CLAIMS

1. An optical pointing device capable of being installed at a slim personal portable device, comprising:
  - 5 a cover glass closely contacting an object;
  - a light source unit emitting light to the cover glass; and
  - a light receiving unit reflecting the light reflected by the object in a predetermined direction and condensing the light, and picking up an image of the light.
- 10 2. The device of claim 1, wherein the light source unit comprises a light source emitting light and a light source guide guiding the light emitted from the light source to the cover glass.
- 15 3. The device of claim 1, wherein the light receiving unit comprises:
  - 15 a reflecting mirror for reflecting the light reflected by the object at the cover glass, the reflected light traveling horizontally;
  - at least one condensing lens disposed on the path of the light reflected by the reflecting mirror to condense the light; and
  - an optical image sensor picking up the image of the light transmitted through the condensing lens.
- 20 4. The device of claim 1, wherein the light receiving unit comprises:
  - 20 a first reflecting mirror for reflecting the light reflected by the object at the cover glass, the light traveling horizontally;
  - at least one condensing lens disposed on the path of the light reflected by the reflecting mirror to condense the light;
  - 25 a second reflecting mirror for reflecting the condensed light transmitted through the condensing lens downward; and
  - an optical image sensor picking up the image of the light reflected by the second reflecting mirror.
- 30 5. The device of claim 1, wherein the light receiving unit comprises:
  - 5 a reflecting mirror for reflecting the reflected light in a predetermined direction;

at least one wave guide installed in the predetermined direction to the reflecting mirror, to guide and condense the light; and

an optical image sensor installed next to the wave guide to pick up the image of the condensed light.

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6. The device of claim 1, wherein the light receiving unit comprises:

a first reflecting mirror for reflecting the reflected light in a first direction;

at least one wave guide installed in the first direction to the first reflecting mirror, to guide and condense the light;

10 a second reflecting mirror for reflecting the condensed light to a second direction; and

an optical image sensor installed in the second direction to the second reflecting mirror, to pick up the image of the condensed light.

15 7. The device of any one of claims 5 and 6, wherein the wave guide has an incidence face and a refraction face, which are plano-convex.

8. The device of claim 1, wherein the optical path in the predetermined direction is longer than a length for providing a sufficient depth of a focus.

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9. The device of claim 1, wherein the light receiving unit includes a shading unit installed on the path of the light to remove noise of the light.

10. A personal portable device equipped with an optical pointing device, 25 comprising:

an optical pointing device including:

a cover glass closely contacting an object;

a light source unit emitting light to the cover glass; and

a light receiving unit reflecting the light reflected by the object in a

30 predetermined direction, condensing the light, and picking up an image of the condensed light;

a display displaying a view for showing various information and a pointer;

- a display drive unit driving the display;
- an image processing unit detecting the speed, direction, and distance of the movement of the object based on information on the image picked up by the optical pointing device; and
- 5 a control unit controlling the display drive unit to change the position of the pointer according to the speed, direction, and distance of the movement of the object.

11. The device of claim 10, further comprising a keypad including click buttons, wherein the control unit performs the operation according to the handling of the click buttons.

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